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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,745	12/28/2001	Richard E. Smalley	11321-P012USD3	2473

7590 08/24/2005  
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EXAMINER
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MAPLES, JOHN S

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/034,745

Applicant(s)

SMALLEY ET AL.

Examiner

John S. Maples

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on June 13, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 166-169, 172-174 and 177-180 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 166-169, 172-174 and 177-180 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 166, 167, 172 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiang-“Carbon Nanotubes”. (Kiang) (New Rejection).

Reference is made to page 905 of Kiang, the second column, lines 2-12 and to Figures 2a, 2b and 2c. These portions of Fischer disclose a membrane of substantially parallel single-wall carbon nanotubes. Not all of the nanotubes in the figures are substantially parallel, however, many of the nanotubes in this figure are substantially parallel, thus meeting the claimed subject matter.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 168, 169, 177-180 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang in view of both Murphy et al.-US 6,448,412 (Murphy) and Ikeda et al.-US 5,879,836. (Ikeda) (New Rejection)

The patent to Kiang sets forth all of the claimed subject matter except for the photoactive molecule attached to the membrane and for a lithium ion battery having a membrane. Murphy teaches in column 27, lines 36-51 a fluorescent dye labeled to a fullerene. To thus include in the single walled nanotubes of Kiang the fluorescent dye as shown by Murphy would have been obvious to one of ordinary skill in this art at the time the invention was made so that the nanotubes could be traced within the body of a diseased person. Ikeda et al. discloses a lithium ion battery having nanotubes-see column 3, lines 42-44 among other places in this patent. To have utilized the nanotubes of Kiang in the lithium ion battery shown by Ikeda would have been obvious so that a greater output could have been realized because of the superior performance of the lithium ion battery.

6. Claims 173-174 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang in view of Stephan et al.-"Doping Graphite...and Nitrogen". (Stephan) (New Rejection)

The patent to Kiang sets forth all of the claimed subject matter except for the dopant being a metal entrapped in the membrane. Stephan teaches in the abstract and on pages 1683-1684 boron being entrapped in the carbon nanotubes. To have

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incorporated the boron in the single walled nanotube membrane of Kiang would have been obvious to modify these carbon materials for their known properties with boron.

7. Applicant's arguments presented in the last action have all been considered but are deemed moot in view of the above new rejections.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Friday from 6:15-3:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Maples  
Primary Examiner  
Art Unit 1745

JSM/8-22-2005